

REMARKS

This Amendment is submitted in response to the Office Action mailed on January 8, 2004. Claims 27-43 stand withdrawn pursuant to a restriction requirement raised by Examiner, and claims 44, 45 and 47 have been amended. Claims 44-52 remain pending in the present application. In view of the foregoing amendments, as well as the following remarks, Applicants respectfully submit that this application is in complete condition for allowance and request reconsideration of the application in this regard.

Claim 45 has been amended as suggested by Examiner to overcome the rejection under 35 U.S.C. §112, second paragraph. Claims 44-52 stand rejected under 35 U.S.C. §102(b) as being anticipated by Haraichi et al., U.S. Patent No. 5,358,806. While Applicants respectfully traverse Examiner's position that the recited functional language is not entitled to any patentable weight, Applicants have amended each of independent claims 44 and 47 to more sharply define the present invention over the prior art of record and respectfully request the rejections be withdrawn.

By way of background, amended independent claim 44 recites an apparatus for making a specific shaped hollow in a work piece. The claimed apparatus includes a laser machining apparatus which is configured to, in a layer-wise manner, remove material of a work piece in horizontal layers corresponding to the specific shape. The apparatus includes a measurement apparatus which is configured to continuously measure the depth of the hollow and a control apparatus

which is configured to determine the boundaries in horizontal direction for removal in a subsequent layer in accordance with the depth of the hollow from the form definition. In this way, the apparatus of the present invention determines the removal boundaries (x- and y-directions) for a subsequent layer in accordance with the actual depth (z-direction) of the hollow already formed.

Amended independent claim 47 recites an apparatus for making a specific shaped hollow in a work piece. The claimed apparatus includes a laser machining apparatus which is configured to, in a layer-wise manner, remove material of a work piece in horizontal layers corresponding to the specific shape and a measurement apparatus which is configured to continuously measure the depth of the hollow. The apparatus includes a memory means which is configured to continuously store the measurement values together with the respective coordinates or at memory locations corresponding to the respective coordinates. The apparatus further includes a control apparatus which is configured to control the laser machining apparatus in accordance with the stored measurement values.

Applicants respectfully submit that Haraichi et al. taken alone, or in combination with the prior art of record, fails to teach or suggest the combination of elements recited in each of independent claims 44 and 47 and the rejections should be withdrawn.

In particular, Haraichi et al. is directed to a machining system which uses a laser beam to monitor the depth of machining. However, Haraichi et al. is completely silent with respect to a control apparatus which is configured to

determine the boundaries in horizontal direction for removal in a subsequent layer in accordance with the depth of the hollow from the form definition as recited in independent claim 44. Haraichi et al. is further silent with respect to a memory means which is configured to continuously store depth measurement values together with respective coordinates or at memory locations corresponding to the respective coordinates, and a control apparatus which is configured to control the laser machining apparatus in accordance with the stored measurement values as recited in independent claim 47. Accordingly, Applicants respectfully request the rejections of independent claims 44 and 47 be withdrawn.

Moreover, as claims 45-46 and 48-52 depend from allowable independent claims 44 and 47, respectively, and further as each of these claims recites a combination of elements not taught or suggested by the prior art of record, Applicants submit that these claims are allowable as well.

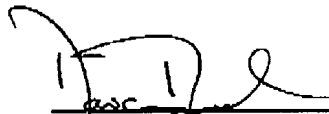
Conclusion

In view of the foregoing response including the amendments and remarks, this application is submitted to be in complete condition for allowance and early notice to this affect is earnestly solicited. If there is any issue that remains which may be resolved by telephone conference, the Examiner is invited to contact the undersigned in order to resolve the same and expedite the allowance of this application.

Applicants do not believe that this response requires that any fees be submitted, however, if any fees are deemed necessary, these may be charged to Deposit Account No. 23-3000.

Respectfully submitted,

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